

What is claimed is:

1. An electric distance meter comprising:

a device to generate a modulation signal for modulating

5 measuring light which is irradiated to an object to be measured;

a pulse signal generation device to periodically generate an intermittent pulse signal for generating intermittent modulated measuring light by intermittently adding said modulation signal to a light emitting element;

10 a frequency signal generation device to generate an internal frequency signal with a frequency different from said modulation signal;

a light receiving element for outputting a light receiving signal by receiving said intermittent modulated measuring light;

a difference frequency signal generation device to generate an intermittent difference frequency signal by inputting said light receiving signal and said internal frequency signal; and

an arithmetic logical unit for calculating a distance to said object to be measured based on a phase difference between a phase of the intermittent difference frequency signal output from the difference frequency signal generation device and a phase of intermittent difference frequency signal obtained through a reference optical path.

2. The electric distance meter according to Claim 1 further comprising a circuit for sampling a signal generation period of said intermittent difference frequency signal with a predetermined interval and a storing device to store sampling data,

wherein said arithmetic logical unit calculates the phase difference based on the sampling data stored in the storing device.

3. The electric distance meter according to Claim 1 further comprising a processing circuit for averaging the signal generation period of said intermittent difference frequency signal, a circuit for
5 sampling the signal averaged by the averaging processing circuit, and a storing device to store sampling data,

wherein said arithmetic logical unit calculates the phase difference based on the sampling data stored in the storing device.

10 4. The electric distance meter according to Claim 1, wherein said arithmetic logical unit generates a sine wave curve based on the sampling data obtained by sampling the signal generation period of said intermittent difference frequency signal with the predetermined interval, while generates a sine wave curve based on sampling data obtained by
15 sampling a signal generation period of the intermittent difference frequency signal obtained through the reference optical path, and calculates a distance based on the phase difference between both of the sine wave curves.

20 5. The electric distance meter according to Claim 4, wherein said sampling data is integrated for a plurality of periods of said intermittent difference frequency signal, and said arithmetic logical unit generates said sine wave curve based on the data integrated for the plurality of periods.

25 6. The electric distance meter according to Claim 4, wherein said arithmetic logical unit collects noise in a non-generation period of the intermittent pulse signal by said intermittent pulse signal generation

device as sampling noise data, generates a noise curve based on the sampling noise data, and corrects the sine wave curve by obtaining a difference of said noise curve from the sine wave curve obtained by sampling said signal generation period.

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7. The electric distance meter according to Claim1, wherein the period of said intermittent pulse signal corresponds to the period of the modulation signal with an interval.

10 8. The electric distance meter according to Claim 1, wherein said intermittent difference frequency signal is generated by inputting said internal frequency signal directly to said light receiving element.